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other than zinc, and n chemically distinct species of anions other than anions derivable by ionization of phosphoric and nitric acids, each of m and n independently being zero or a positive integer, the concentration of zinc in moles per liter in said liquid composition satisfying the following mathematical condition:

$$\{Zn\} \leq 0.3 \{H_3PO_4\} + 0.5 \{HNO_3\} - 0.5 \sum_{i=0}^m p_i C_i + 0.5 \sum_{j=0}^n q_j A_j$$

in which: " $\{Zn\}$ ", " $\{H_3PO_4\}$ ", and " $\{HNO_3\}$ " respectively represent the zinc, phosphoric acid, and nitric acid concentrations in mol/L; each of C_0 and A_0 is zero; each of p_0 and q_0 is 1; if m is not zero, for each positive integer i from 1 to m , C_i represents the concentration in mol/L of the i 'th distinct cation species other than zinc present in the bath and p_i represents the cationic valence of said i 'th distinct cation species; and if n is not zero, for each positive integer j from 1 to n , A_j represents the concentration in mol/L of the j 'th distinct anion species other than anions derivable by ionization of phosphoric or nitric acids present in the bath and q_j represents the anionic valence of said j 'th distinct anion species;

- the phosphoric acid concentration is from 0.25 to 0.50 mol/L;

- the nitric acid concentration is from 0.65 to 0.90 mol/L; and

- $\{Zn\} \geq 0.27 \{H_3PO_4\} + 0.45 \{HNO_3\} - 0.45 \sum_{i=0}^m p_i C_i + 0.45 \sum_{j=0}^n q_j A_j$.

12. (Amended) A liquid composition that is suitable as electrolyte for a nonsludging electrolytic zinc phosphate treatment process, said liquid composition comprising water, at least 0.10 mol/L dissolved phosphoric acid, at least 0.3 mol/L dissolved nitric acid, dissolved zinc cations, m chemically distinct species of cations other than zinc, and n chemically distinct species of anions other than anions derivable by ionization of phosphoric and nitric acids, each of m and n independently being zero or a positive integer, the concentration of zinc in moles per liter in said liquid composition satisfying both of the following mathematical conditions:

$$\{Zn\} \leq 0.3 \{H_3PO_4\} + 0.5 \{HNO_3\} - 0.5 \sum_{i=0}^m p_i C_i + 0.5 \sum_{j=0}^n q_j A_j; \text{ and}$$

$$\{Zn\} \geq 0.15 \{H_3PO_4\} + 0.25 \{HNO_3\} - 0.25 \sum_{i=0}^m p_i C_i + 0.25 \sum_{j=0}^n q_j A_j.$$